S200XA Linear Heat Series Sensor Cables

Multimode, Flame-Retardant Non-Corrosive (FRNC)

These special linear heat sensor cables are suited for indoor and outdoor use. Each cable includes two MM fibers for temperature sensing. These sensor cables have a halogen-free and flame-retardant non-corrosive (FRNC) cable sheath.

Sensor Cable “Safety” S2000A and S2000A-RED

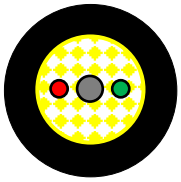
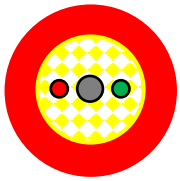
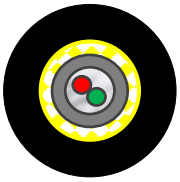
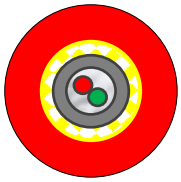
The S2000A is a fast-responding, flame-retardant non-corrosive (FRNC) sensor cable with a tight buffered fiber, with GRP strength member, compact dimensions, high flexibility and good bending behavior. Due to the aramid yarns, the cable has a high tensile strengths. Upon request, this cable is available in other colors.

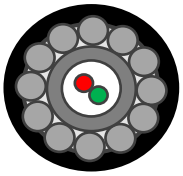
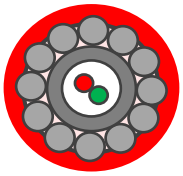
Sensor Cable “Safety+” S2000B and S2000B-RED

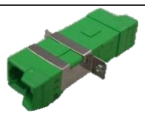
The S2000B is an advancement of the proven S2000A Safety cable with high dielectrically strength. The S2000B is a fast-responding, flame-retardant non-corrosive (FRNC) sensor cable with a high compact dimensions, high flexibility and good bending behavior. Due to high performance yarns the cable has a high tensile strengths. Upon request, this cable is available in other colors.

Sensor Cable “Steel Armored” S2002A and S2002A-RED

The S2002A is a fast-responding, flame-retardant non-corrosive (FRNC) armored sensor cable with stainless steel loose tube and outer sheath. Due to this design the sensor cable has a high tensile strength, high crush resistance and provides excellent rodent protection and is longitudinally and laterally watertight. Upon request, this cable is available in other colors.

Design Components				
Cable Types	**S2000A**	**S2000A-RED**	**S2000B**	**S2000B-RED**
Cable Version	Safety		Safety+	
				
Outer sheath material	Flame-retardant non-corrosive (FRNC)		Flame-retardant non-corrosive (FRNC)(6)	
Armoring	Swellable aramid yarns (metal-free)		High performance yarns (metal-free)	
Cable design	GRP strength member, fiber tight buffered in aramid yarn		Fiber in tube protected by high performance yarns	
Standard fiber count / cable	2 MM			
UV-resistant	Yes	No	Yes	No
Longitudinal water-resistant	No		No	
Mechanical / Physical Details				
Approximate weight (1)	17 kg/km		20 kg/km	
Outer diameter (1)	4.0 mm		4.0 mm	
Crush resistance (2)	1,000 N/10 cm		1,200 N/10 cm	
Tensile strength (installation) (2)	1,000 N		1600 N	
Tensile strength (operation) (2)	800 N		1200 N	
Operating temperature	-40 °C to +85 °C			
Short term temperature	-40 °C to +150 °C			
Functional integrity (4)	Up to +750 °C			
Optical Details				
MM fiber type	OM2 (50/125 µm)			
MM-attenuation 850 nm wavelength 1300 nm wavelength	Maximum: 2,7 dB/km / Typical: 2.5 dB/km Maximum: 0,8 dB/km / Typical: 0.7 dB/km			
Installation Details				
Outer diameter (1)	4.0 mm		4.0 mm	
Static bending radius (2)	15 x D (outer Ø)		20 x D (outer Ø)	
Repeated bending (2)	20 x D (outer Ø)			
Installation temperature	-5 °C to +50 °C			
Cable Length (7)				
Max. length / drum	8,000 m			
Typical length / drum	4,000 m			

Design Components		
Cable Types	**S2002A**	**S2002A-RED**
Cable Version	Steel armored	
		
Outer sheath material	Flame-retardant non-corrosive (FRNC)	
Armoring	Stainless steel AISI 316L tube Stainless steel AISI 316L wires	
Cable design	Gel free, fiber loose in FIMT (fiber in metal tube)	
Standard fiber count / cable	2MM	
UV-resistant	Yes	No
Longitudinal water-resistant	Yes	
Mechanical / Physical Details		
Approximate weight (1)	29 kg/km	
Outer diameter (1)	3.8 mm	
Crush resistance (2)	9,600 N/10 cm (5)	
Tensile strength (installation) (2)	1,500 N	
Tensile strength (operation) (2)	1,100 N	
Operating temperature	-40 °C to +85 °	
Short term temperature	-40 °C to +150 °C	
Functional integrity (4)	up to +750 °C	
Optical Details		
MM fiber type	OM2 (50/125 µm)	
MM-attenuation 850 nm wavelength 1300 nm wavelength	 Maximum: 2,7 dB/km / Typical: 2.5 dB/km Maximum: 0,8 dB/km / Typical: 0.7 dB/km	
Installation Details		
Outer diameter (1)	3.8 mm	
Static bending radius (2)	15 x D (outer Ø)	
Repeated bending (2)	20 x D (outer Ø)	
Installation temperature	-5 °C to +50 °C	
Cable Length (7)		
Max. length / drum	8,500 m	
Typical length / drum	4,500 m	

Optional Features		
For S2000A cable: Sensor cable connector [3] – Option **S2000A-001**	- 2 x Pigtail with E2000 8° APC connector - Splice protection and strain relief - Pre-assembled on one cable end	
For S2000B cable: Sensor cable connector [3] – Option **S2000B-001**	- 2 x Pigtail with E2000 8° APC connector - Splice protection and strain relief - Pre-assembled on one cable end	
For S2002A cable: Sensor cable connectors [3] – Option **S2002A-001**	- 2 x Pigtail with E2000 8° APC connector - Splice protection and strain relief - Pre-assembled on one cable end	
S2008A Pigtail with optical connector Length: 5 m	- Pigtail with E2000 8° APC connector, length: 5 m - For splicing to the sensor fiber (either to connect DTS, or for termination)	
S2006A Pigtail with optical connector Length: 30m	- Pigtail with E2000 8° APC connector, length: 30m - For splicing to the sensor fiber (either to connect DTS, or for termination)	
S2010A Sensor Tube Cutting Tool	- Recommended to cut the stainless-steel tube of a reinforced sensor cable type S2002	
S2011A E2000 APC Adapter	- Used to connect two E2000 APC 8° connectors or for termination. - Suitable for singlemode and multimode sensor cables	
S2012A Universal Sensor Cable Stripper	- Tool for gaining mid-span access to armored or thick jacketed sensor cables 4 mm-28.6 mm in diameter	
S2012A-001 Universal Sensor Cable Stripper Replacement Blades	- Precision steel blade will cut through the toughest materials and ensure no damage to the internal fibers. - Suitable for both slitting and ringing application	 (Pack of two replacement blades)

All S200XX linear heat series sensor cables comply with these standards:

Standards and Certification	
Standard / Certification	**Remark**
IEC 60331-25 [4]	Tests for electric cables under fire conditions - circuit integrity – Part 25 Procedures and requirements - optical fiber cables
IEC 60332-1	Tests on electric and optical fiber cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable
IEC 60754-1	Test on gases evolved during combustion of materials from cables – Part 1: Determination of the halogen acid gas content
IEC 60754-2	Test on gases evolved during combustion of materials from cables – Part 2: Determination of acidity (by pH measurement) and conductivity
IEC 60793	Optical fibers – Part 1-1: Measurement methods and test procedures - General and guidance
IEC 60794-1-2	Optical fiber cables – Part 1-2: Generic specification - basic optical cable test procedures - General guidance
IEC 61034-2	Measurement of smoke density of cables burning under defined conditions - Part 2: Test procedure and requirements
EN 187000	Generic specification: optical fiber cables
VdS EN-54	Resettable line-type heat detectors, tested and approved by VdS
UL 521 approved	Heat detectors for fire protective signaling systems
CAN/ULC S530 listed	Standard for heat actuated fire detectors for fire alarm systems
FM 3210 approved	Heat detectors for automatic fire alarm signaling

(1) Tolerance of -5% / +10%

(2) Crush resistance IEC 60794-1-2 method E3A

Tensile strength short term (installation) IEC 60794-1-2 method E1 A/B

Tensile strength long term (operation) IEC 60794-1-2 method E1 A/B

Static bend radius IEC 60794-1-2 method E11

Repeated bending IEC 60794-1-2 method E6

(3) Pre-assembled sensor cable connectors are optionally available to reduce deployment cost and time. These enable a quicker and easier installation, with no need to organize a fusion splicer and splice box to connect the sensor cable to the DTS or DAS. Pigtails are supplied with E2000 8° connectors. For safe transportation they are covered with a flexible protective tube when shipped.

(4) Functional integrity of the sensor cable tested for 2 hours with min. flame temperature of 750 °C as per IEC 60331-25. In tunnel fire testing it has been demonstrated that the functional integrity of the cable was maintained for several minutes with temperatures exceeding 1000 °C.

(5) 600N/cm in operation / max. 960N/cm during installation.

(6) Dielectric strength of sheath material: >25kV/mm AC according to BS EN 60243-1:2013

(7) Cable is consecutively marked in meters.

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